

13

of the first implant member **10**. Once the interbody device **1** is attached to the insertion tool **40**, the second implant member **20** may be shifted to an expanded configuration via rotation of the rotatable knob **54** in a clockwise direction. Rotation of the knob **54** advances the ram member **52** longitudinally along the stationary shaft **46**, causing the distal end of ram member **52a** to urge the second implant member **20** distally along the arcuate path of the sliding interface **15**. As the second implant member **20** is shifted along the arcuate path, the longitudinal axis  $L_2$  of the second implant member **20** shifts out of substantial alignment with the longitudinal axis  $L_1$  of the first implant member **10** to extend more transversely relative thereto, i.e., the angle between the axes is increased. The second implant member **20** is advanced until the retaining clip **30** blocks further movement of the second implant member **20** via abutting engagement with the stops **20n**, **20p**, or alternatively until the distal end of the ram member **52** abuts the first implant member **10**, preventing further advancement of the ram member **52** relative to the spacer member **10**. Once the second implant member **20** is advanced to the desired expanded position, the interbody device **1** may be removed from the tool **40** by rotating the knob **50** in a counterclockwise direction to rotate the draw rod **48** until the threaded end **48a** is fully retracted from the threaded recess **10r** of the first implant member.

In an alternative form, a tool for manipulating a surgical device is disclosed. In one embodiment, the tool takes the form of an anchor blade insertion tool **100** for manipulating an anchor blade, and particularly for inserting an anchor blade **150** into a retractor blade, such as that disclosed in FIG. 5 of United States Published Patent Application 2012/0232349, which is hereby incorporated by reference in its entirety. Although the tool is disclosed with reference to an anchor blade insertion tool, the tool has applicability in numerous applications, as would be apparent to one of ordinary skill in the art.

As shown in FIGS. 20-24 the insertion tool **100** includes a distal handle member **102**, an actuator connected thereto in the form of a lever **104**. The lever **104** is connected to a moveable lower shaft **106**, which is operable in conjunction with a stationary upper shaft **108** for gripping and releasing a portion of a surgical device, such as an opening **150a** in the proximal portion of anchor blade **150**. The moveable lower shaft **106** is shiftable proximally and distally along a longitudinal tool axis  $L$  between gripping and releasing configurations via shifting of the lever **104** from a distal or forward position to a proximal or rearward position, respectively. In other words, the lever **104** is pulled back to release the anchor blade **150**, and alternatively shifted forward to secure the anchor blade **150** to the tool **100**.

Each of the upper and lower shafts **108**, **106** include a gripping portion at the distal end thereof in the form of a gripping hook **108a**, **106a**. The stationary distal gripping hook **108a** of the upper shaft **108** is located distally along the tool axis  $L$  from the gripping hook **106a** of the moveable lower shaft **106**. The gripping hooks **106a**, **108a** are configured to fit within a throughbore or other structure with opposing surfaces that can be gripped via expansion of the gripping hooks apart from one another. Because the gripping hooks are configured to fit between opposing surfaces, the hooks face away from one another with the distal gripping hook **108a** extending distally, and the proximal movable gripping hook **106a** extending proximally as shown in FIG. 21.

The moveable lower shaft **106** is connected to the lever **104** via a linkage **110**. The linkage is preferably comprised of a material with superelastic characteristics, such as NITINOL.

14

The operation and characteristics of such a superelastic linkage is described in United States Published Patent Application 2009/0234395, which is hereby incorporated by reference in its entirety. Such a linkage is preferred to transmit relatively large amounts of tensile force with minimal displacement/strain of the linkage **110**. The linkage **110** is connected to the lever **104** via connecting members **112** and **114**. Cylindrical connecting member **114** is connected to the lever **104** via a pin **116** which extends through a transverse through-opening **114a**. The through-opening **114a** is sized and configured to accommodate arcuate movement of the pin **116** by allowing the pin **116** to travel normally (i.e. up and down) with respect to the longitudinal tool axis. The lever **104** includes opposing pivot portions **104a**, **104b** with recesses **104c**, **104d** that are configured to hold the pin **116** therebetween. The pin **116** is thereby held offset from the axis of rotation of the pivot portions **104a**, **104b** such that when the lever **104** is rotated clockwise about the pivot portions' axis of rotation, the pin **116** rotates clockwise about the lever axis of rotation and experiences displacement towards the distal end of the tool. This reduces tension on the linkage **110** and also urges the linkage **110** distally to cause a corresponding distal movement of the lower shaft member **106**, thereby moving the proximal gripping hook **106a** to move towards the stationary gripping hook **108a** of the upper shaft **108** into the releasing or loading configuration. To return the tool to the gripping configuration, the lever **104** is returned to the forward position as shown in FIG. 21. This pulls the lower shaft **106** proximally and puts the linkage **110** in tension with an appropriate amount of force suitable for holding and manipulating the anchor blade **150**.

While there have been illustrated and described particular embodiments of the present invention, it will be appreciated that numerous changes and modifications will occur to those skilled in the art, and it is intended in the appended claims to cover all those changes and modifications which fall within the true spirit and scope of the present invention.

What is claimed is:

1. An expandable intervertebral device for implantation within an intervertebral space between adjacent vertebrae, the expandable intervertebral device comprising:

first and second bearing members each having a longitudinal axis, opposing bone-engaging outer surfaces extending between a distal leading end and a proximal trailing end; and

connecting portions of the first and second bearing members configured for allowing the first and second members to stay connected while shifting relative to each other between:

(1) an unexpanded insertion configuration, wherein the trailing end of the first bearing member is engaged with the leading end of the second bearing member and the longitudinal axes of the first and second bearing members are substantially aligned, and

(2) an expanded configuration, wherein the leading end of the second bearing member is shifted away from the trailing end of the first bearing member so as to be spaced in a lateral direction from the trailing end of the first bearing member;

wherein the first bearing member comprises an insertion tool engaging portion at the trailing end thereof and the second bearing member is configured to allow an insertion tool to extend through at least a portion thereof to access the insertion tool engaging portion.

2. The expandable intervertebral device of claim 1, wherein the connecting portions have an arcuate configuration.